

2017 EOU E&M Quiz**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Two charged particles held near each other are released. As they move, the acceleration of each decreases. Therefore, the particles have
- the same sign.
 - opposite signs.
 - charges that can not be determined.
- _____ 2. An ampere is a
- unit of current.
 - type of charge.
 - current.
 - voltage.
 - unit of resistance.
- _____ 3. Two like charges
- neutralize each other.
 - have no effect on each other.
 - attract each other.
 - repel each other.
 - must be neutrons.
- _____ 4. When two light bulbs are connected in series, the
- same amount of current always flows through each bulb.
 - current through each light bulb is proportional to the resistance of the bulb.
 - neither A nor B
- _____ 5. In order for there to be a flow of charge from one place to another, there must be a
- conductor, such as a wire, connecting the two places.
 - potential difference between the two places.
 - Both A and B above
- _____ 6. Atomic nuclei of almost all elements consist of
- only protons.
 - protons and neutrons.
 - only neutrons.
 - protons and electrons.
 - neutrons and electrons.
- _____ 7. Electrical resistance is measured in
- volts.
 - amperes.
 - watts.
 - joules.
 - none of the above
- _____ 8. When resistors are put in parallel with each other their overall resistance is
- larger than the resistance of any other resistor.
 - the same as the resistance of one of the resistors.
 - smaller than the resistance of any of the resistors.

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Circuit Problem Solving

Solve the problem using the scratch paper provided and then identify the choice that best answers the question.

Use the following diagram and data for questions 9 – 12

	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">$V_T = 45\text{v}$</td> <td style="padding: 5px;">$R_1 = 12\ \Omega$</td> </tr> <tr> <td style="padding: 5px;">$R_2 = 8\ \Omega$</td> <td style="padding: 5px;">$R_3 = 18\ \Omega$</td> </tr> </table>	$V_T = 45\text{v}$	$R_1 = 12\ \Omega$	$R_2 = 8\ \Omega$	$R_3 = 18\ \Omega$
$V_T = 45\text{v}$	$R_1 = 12\ \Omega$				
$R_2 = 8\ \Omega$	$R_3 = 18\ \Omega$				

9. What Kind of Circuit is this?

a. Parallel	b. Combo Parallel-Series	c. Combo Series-Parallel
d. Series	e. None of these	

10. What is the Total Current in this circuit?

a. 1.4 amps	b. 2 amps	c. .5 amps
d. 1.2 amps	e. 1.6 amps	

11. What is the Voltage drop across Resister #1?

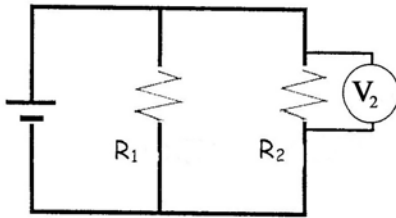
a. 30 V	b. 14.2 V	c. 15 V
d. 9.5 V	e. 21.3 V	

12. What is the Voltage drop across Resister #2?

a. 30 V	b. 14.2 V	c. 15 V
d. 9.5 V	e. 21.3 V	

13. What is the Voltage drop across Resister #3?

a. 30 V	b. 14.2 V	c. 15 V
d. 9.5 V	e. 21.3 V	



$V_2 = 68 \text{ V}$	
$R_1 = 32 \Omega$	$R_2 = 18 \Omega$

14. What Kind of Circuit is this?

- a. Parallel
- b. Combo Parallel-Series
- c. Combo Series-Parallel
- d. Series
- e. None of these

15. What is the Total Current in this circuit?

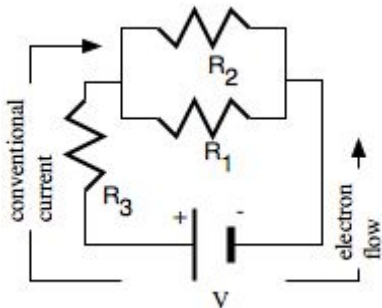
- a. 3.8 amps
- b. 4.1 amps
- c. 5.1 amps
- d. 5.9 amps
- e. 2.1 amps

16. What is the Current through Resister #1?

- a. 3.8 amps
- b. 4.1 amps
- c. 5.1 amps
- d. 6.4amps
- e. 2.1 amps

17. What is the Current through Resister #2?

- a. 3.8 amps
- b. 4.1 amps
- c. 5.1 amps
- d. 6.4amps
- e. 2.1 amps



$V_T = 40 \text{ V}$	$R_1 = 10 \Omega$
$R_2 = 20 \Omega$	$R_3 = 25 \Omega$

18. What is the Total Current in this circuit?

- a. 1.3 amps
- b. .9 amps
- c. .4 amps
- d. 2.6 amps
- e. 3.5 amps

19. What is the Current across Resister #2?

- a. 1.3 amps
- b. .9 amps
- c. .4 amps
- d. 2.6 amps
- e. 3.5 amps

20. What is the Voltage drop across Resister #3?

- a. 155 V
- b. 31.6 V
- c. 22.6 V
- d. 27.3 V
- e. 40 V